REMARKS

Examiner A. Moe is thanked for the thorough examination and search of the subject Patent Application. Claims 1, 29, and 38 have been amended. Claims 2, 4-28, 30, 32-37, and 39-42 have been canceled.

All Claims are believed to be in condition for Allowance, and that is so requested.

Reconsideration of Claims 1, 3, 38, 43, 44, 47 and 48 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (U.S. 4,768,085) in view of Lee et al (U.S. 6,466,265) is requested based on Amended Claims 1 and 38 and on the following remarks.

Applicant has amended Claim 1 to include the element "a summing amplifier to sum values of two or more said values of said pixel elements," as is shown by Amended Claim 1 below:

1. (Currently Amended) A color imaging system providing on-the-fly color interpolation using analog signals to reconstruct colors during sensor readout, the imaging system comprising:

an array of pixel sensor elements wherein at east part of the array is arranged in rows and columns;

a color filter including a plurality of color filter components organized in a predefined pattern, the color filter overlaying at least a portion of the array;

a readout control circuit coupled to the array; [and]

an array controller coupled to the array wherein the readout control circuit and the array controller are configured to simultaneously read out values for a group of pixel elements within a first portion of the array, including at least two pixel elements from two different rows and two pixel elements from two different columns and to reconstruct color components for at least a first pixel sensor element and a second pixel sensor element using color information from other pixels elements within at least the first portion of the array while the readout control circuit is reading said first portion of the array;

a summing amplifier to sum values of two or more said values of said pixel elements; and

a plurality of color amplifiers each corresponding to one of said color filter components wherein each said color amplifier has a programmable gain.

The added element corresponds to the summing amplifier 154 on Fig. 4 (Specification page 13) and does not constitute new matter. Applicant has reviewed the cited art and does not find this additional element. In particular, Hashimoto and Lee et al do not appear to teach or to suggest, separately or in combination, the summing amplifier element used in Applicant's claimed invention as recited in Amended Claim 1. Therefore, Applicant respectfully requests that the rejection under 35 U.S.C. 103(a) of Amended Claim 1 be removed. In addition, Claims 3, 43, and 44 represent patentably distinct, further limitations on Claim 1 and should be in condition for allowance if the rejection of Claim 1 is removed.

Applicant has also amended Claim 38 in similar fashion to Claim 1. Amended Claim 38 is shown below:

38. (Currently Amended) A color imager comprising:

a first light sensor which generates a first analog output signal related to the amount of a first color of light sensed;

a second light sensor which generates a second analog output signal related to the amount of a first color of light sensed;

a third light sensor which generates a third analog output signal related to the amount of a second color of light sensed;

a fourth light sensor which generates a fourth analog output signal related to the amount of a third color of light sensed;

a circuit configured to read out the first, second, third, and fourth analog values at the same time; and

an interpolation circuit configured to receive said first output signal and said second output signal, wherein said interpolation circuit provides and interpolation signal on the fly based on at least said first analog output signal and said second analog output signal;

a summing amplifier to sum two or more said analog values; and

a plurality of color amplifiers each corresponding to one of said colors of light wherein each said color amplifier has a programmable gain.

The added element corresponds to the summing amplifier 154 on Fig. 4 (Specification page 13) and does not constitute new matter. Applicant has reviewed the cited art and does not find this additional element. In particular, Hashimoto and Lee et al do not appear to teach or to suggest, separately or in

combination, the summing amplifier element used in Applicant's claimed invention as recited in Amended Claim 38. Therefore, Applicant respectfully requests that the rejection under 35 U.S.C. 103(a) of Amended Claim 38 be removed. In addition, Claims 47 and 48 represent patentably distinct, further limitations on Claim 38 and should be in condition for allowance if the rejection of Claim 38 is removed.

Reconsideration of Claims 1, 3, 38, 43, 44, 47 and 48 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (U.S. 4,768,085) in view of Lee et al (U.S. 6,466,265) is requested based on Amended Claims 1 and 38 and on the above remarks.

Reconsideration of Claim 45 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (U.S. 4,768,085) in view of Lee et al (U.S. 6,466,265) and further in view of Wilder et al (U.S. 5,262,871) is requested based on Amended Claim 1 and on the following remarks.

As discussed above, Amended Claim 1 now contains an additional element, a summing amplifier. Applicant has reviewed the cited art and does not find this additional element. In particular, Hashimoto and Lee et al and Wilder et al do not

appear to teach or to suggest, separately or in combination, the summing amplifier element used in Applicant's claimed invention as recited in Amended Claim 1. Therefore, Applicant respectfully submits that Amended Claim 1 should not be rejected under 35 U.S.C. 103(a) even with the further view of Wilder et al. In addition, Claim 45 a represent patentably distinct, further limitation on Claim 1 and should be in condition for allowance if Claim 1 is not rejected.

Reconsideration of Claim 45 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (U.S. 4,768,085) in view of Lee et al (U.S. 6,466,265) and further in view of Wilder et al (U.S. 5,262,871) is requested based on Amended Claim 1 and on the above remarks.

Reconsideration of Claim 29, 31, and 46 rejected under 35 U.S.C. 103(a) as being unpatentable over Maenaka et al (U.S. 5,555,023) in view of Lee et al (U.S. 6,466,265) is requested based on Amended Claim 29 and on the following remarks.

Applicant has amended Claim 29 to include the limitation wherein the reconstructing of color components comprises summing values of two or more said pixel sensor elements. Amended Claim 29 is shown below:

claimed invention as recited in Amended Claim 29. Therefore, Applicant respectfully requests that the rejection under 35 U.S.C. 103(a) of Amended Claim 29 be removed. In addition, Claims 31 and 46 represent patentably distinct, further limitations on Claim 29 and should be in condition for allowance if the rejection of Claim 29 is removed.

Reconsideration of Claim 29, 31, and 46 rejected under 35 U.S.C. 103(a) as being unpatentable over Maenaka et al (U.S. 5,555,023) in view of Lee et al (U.S. 6,466,265) is requested based on Amended Claim 29 and on the above remarks.

Applicants have reviewed the prior art made of record and not relied upon and have discussed their impact on the present invention above.

Allowance of all Claims is requested. It is also requested that should the Examiner not find that the Claims are now Allowable that the Examiner call the undersigned at 989-894-4392 to overcome any problems preventing allowance.

Respectfully submitted,

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